

Improving Outcomes and Cost of Alcohol and Drug Treatment: Rethinking the Continuum of Services



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Overview

What are the prevalence and characteristics of alcohol and drug problems in a community?

- ☐ Where is the burden of problems?
- ☐ What are the related health and social problems?
- ☐ Does integrating services make a difference?
 - What are the outcomes and cost arguments?

Missed opportunities and potential interventions

- ☐ Screening
- ☐ Brief Interventions

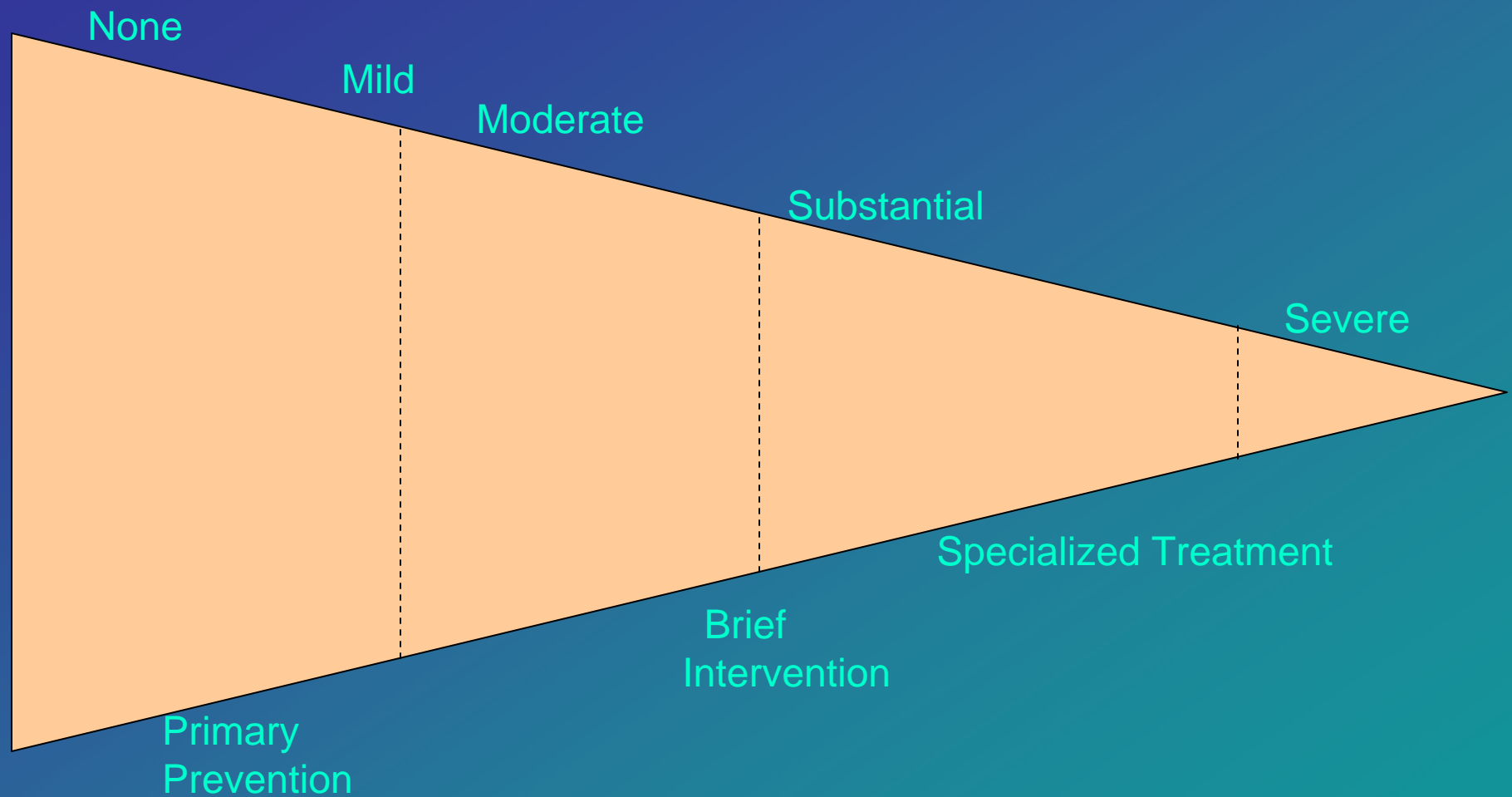
What might a continuum of care look like?

- ☐ Interventions, referrals, liaisons, out-stationing, continuum of coordination

Where are alcohol and drug problems found in a community?

Weisner C, Schmidt LA. Expanding the frame of health services research in the drug abuse field. *Health Serv Res.* 1995;30(5):707-26.

Weisner C, Schmidt L. (1995). The Community Epidemiology Laboratory: Studying alcohol problems in community and agency-based populations. *Addiction* 90(3):329-42.










Distribution of Alcohol (and Drug) Problems

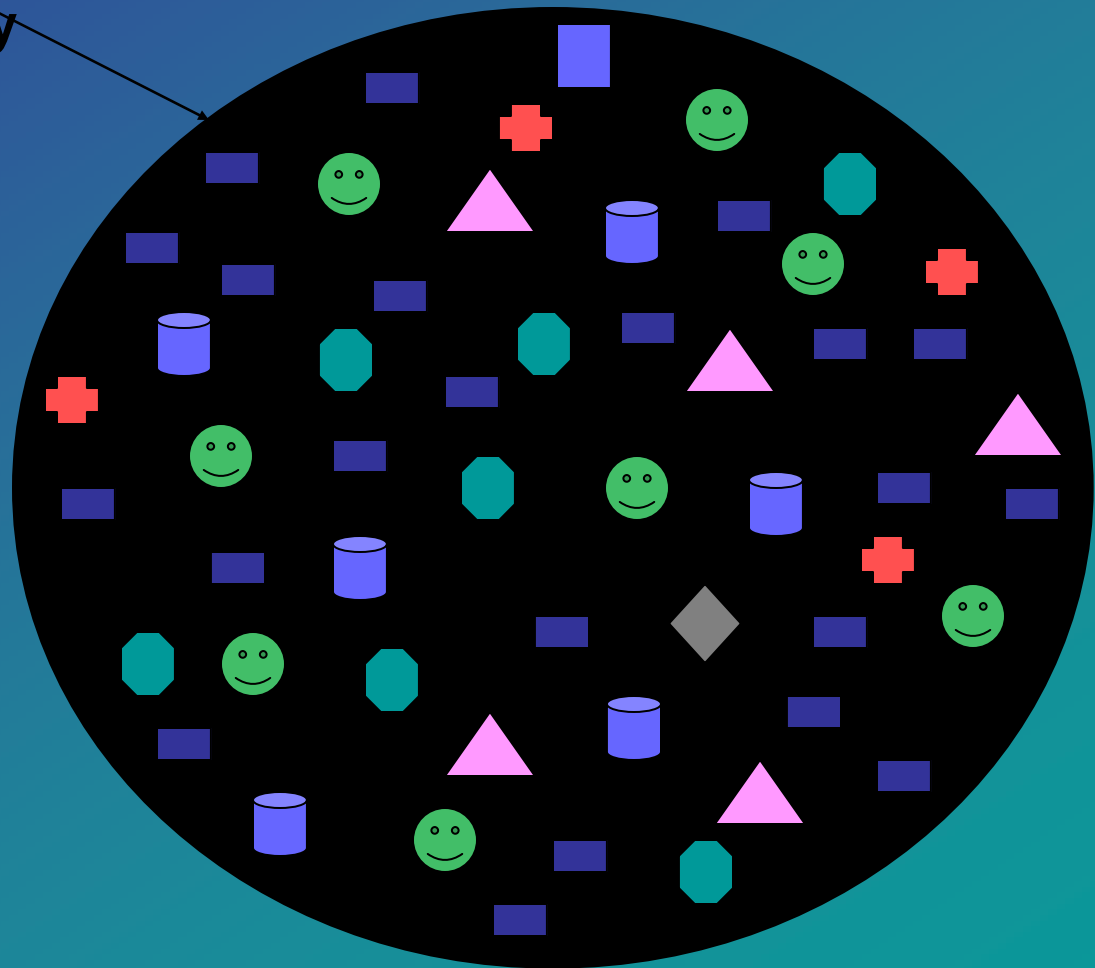
Institute of Medicine. *Broadening the Base of Treatment for Alcohol Problems*. Washington, DC: National Academy Press; 1990.

Community Epidemiology Laboratory

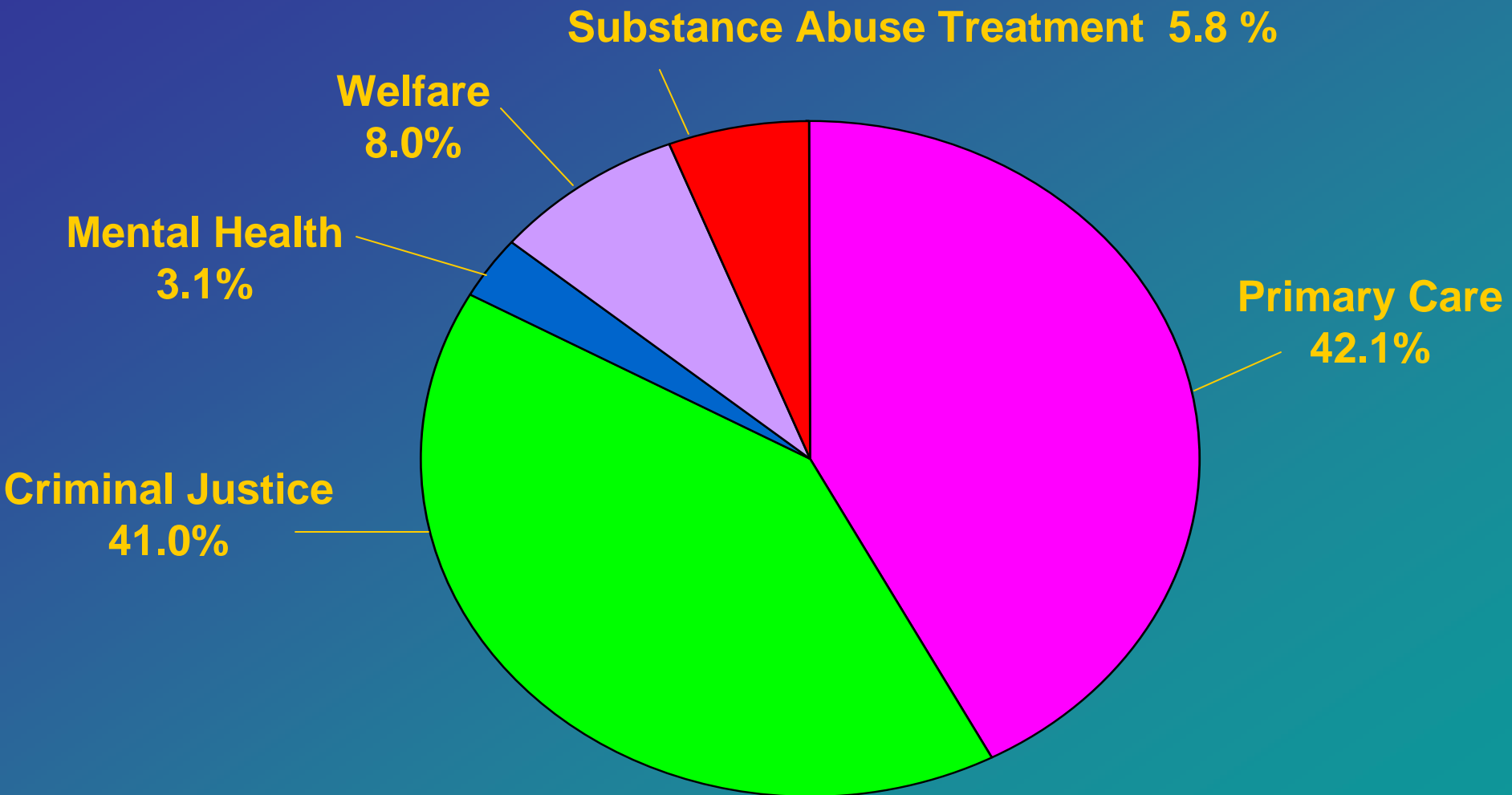
General Population Survey

Agency Systems

-  Alcohol Treatment (22)
-  Drug Treatment (8)
-  Mental Health (8)
-  Welfare (7)
-  Emergency Room (4)
-  Primary Health Care (5)
-  Criminal Justice (1)



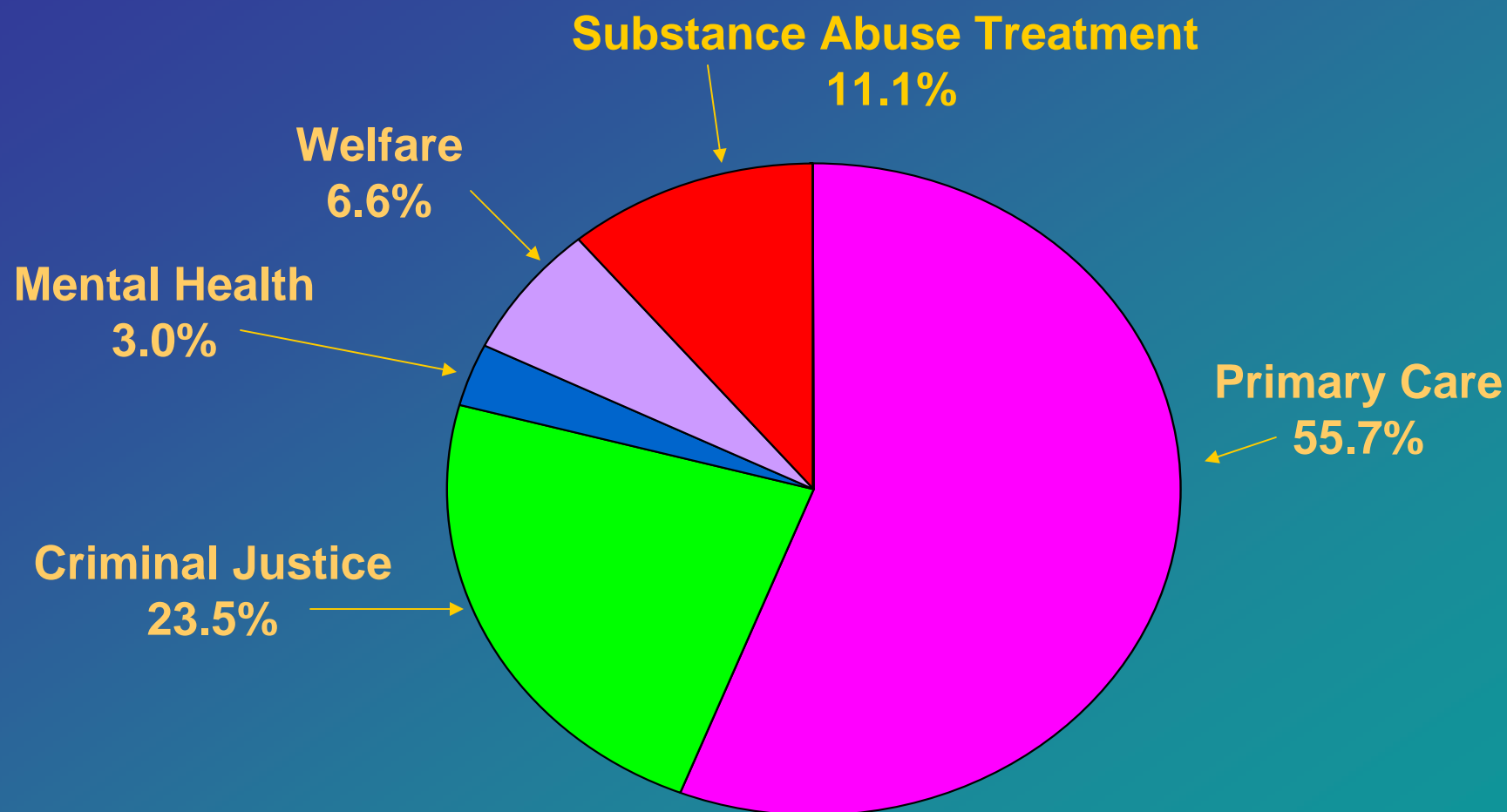
Distribution of New Admissions¹ of Problem Drinkers² in Community Agency Systems



¹ Data weighted for design effects, non-response, and to a common fieldwork duration so that each agency system sample is shown to its size.

² Problem drinking rates over a base of problem drinkers across all agency systems.

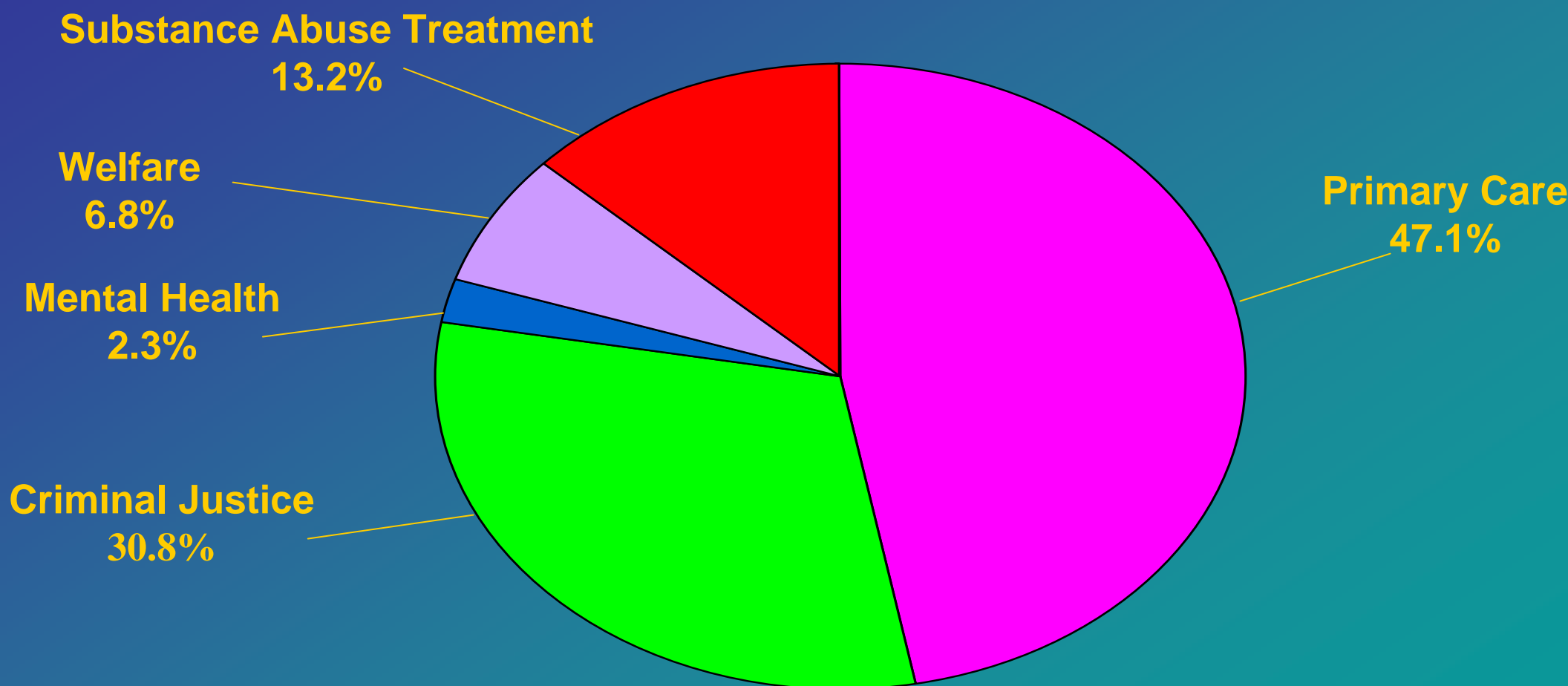
Distribution of New Admissions¹ of Alcohol Dependent² Individuals in Community Agency Systems



¹ Data weighed for design effects, non-response, and to a common fieldwork duration so that each agency system sample is shown to its size.

² Dependence rates over a base of those meeting DSM-III-R criteria across all agency systems.⁷

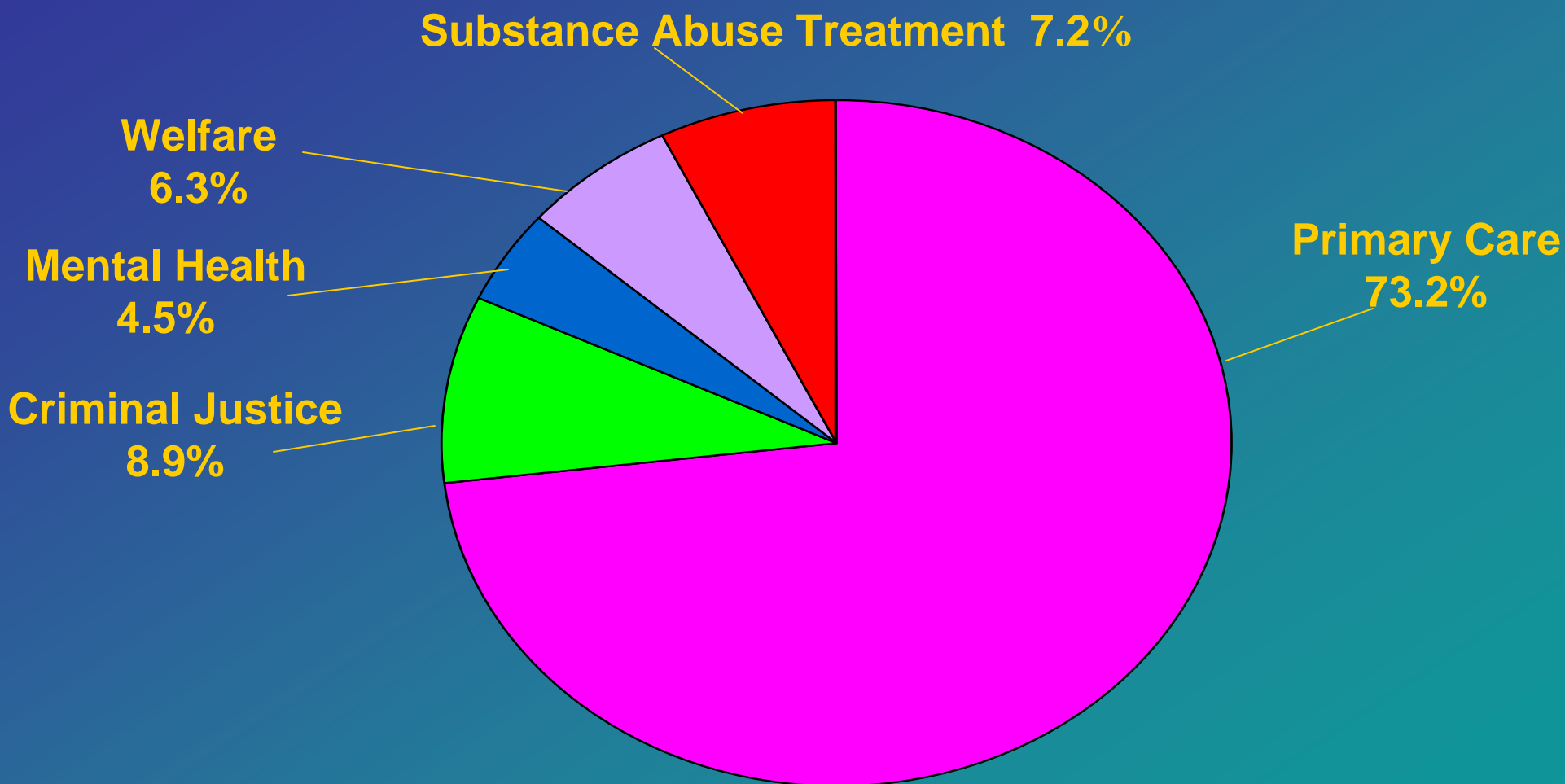
Distribution of New Admissions¹ of Alcohol Dependent² Men in Community Agency Systems



¹ Data weighted for design effects, non-response, and to a common fieldwork duration so that each agency system sample is shown to its size.

² Alcohol dependence rates over a base of alcohol dependent men across all agency systems.

Distribution of New Admissions¹ of Alcohol Dependent² Women in Community Agency Systems

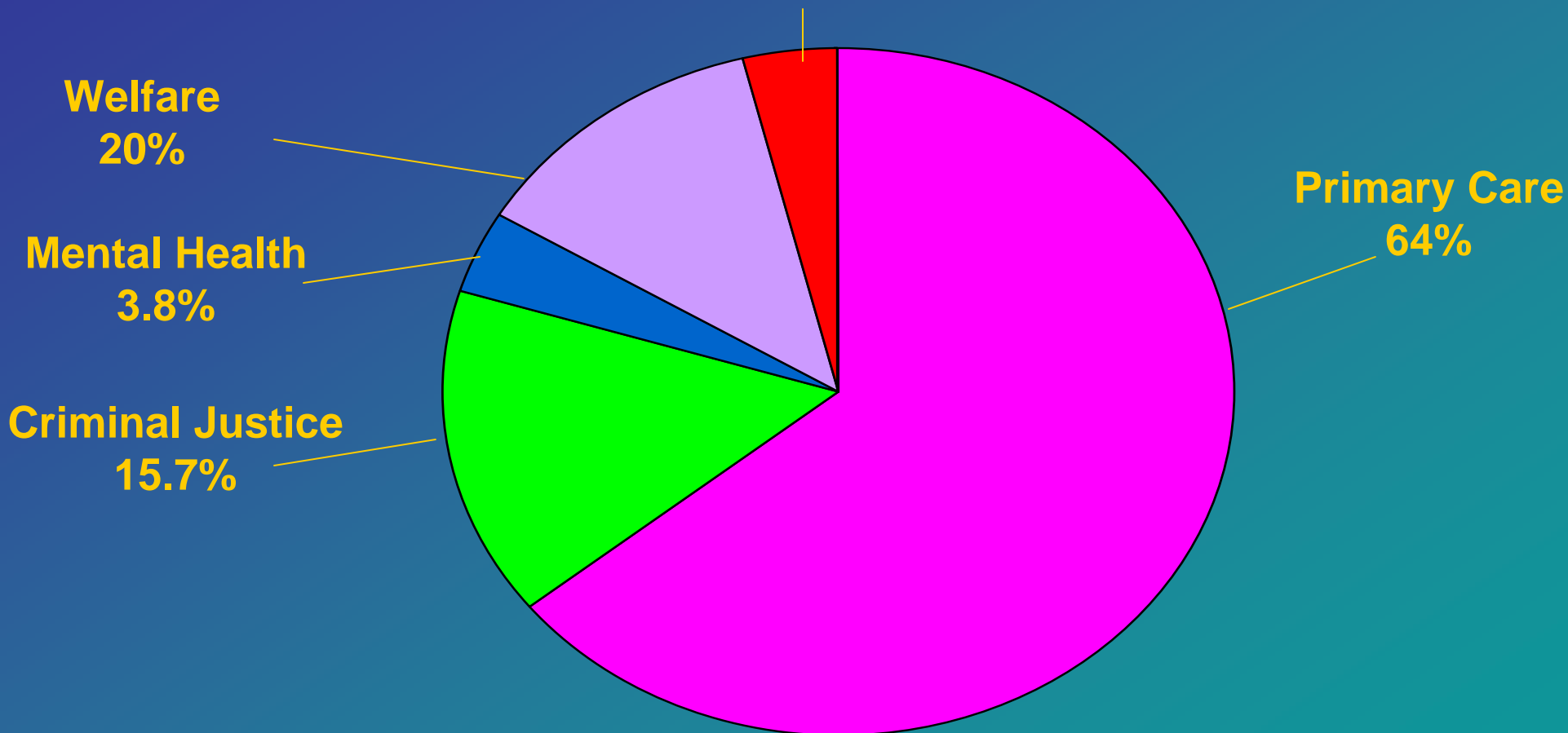


¹ Data weighted for design effects, non-response, and to a common fieldwork duration so that each agency system sample is shown to its size.

² Alcohol dependence rates over a base of alcohol dependent women across all agency systems.

Distribution of New Admissions of Female Weekly Drug Users² in Community Agency Systems¹

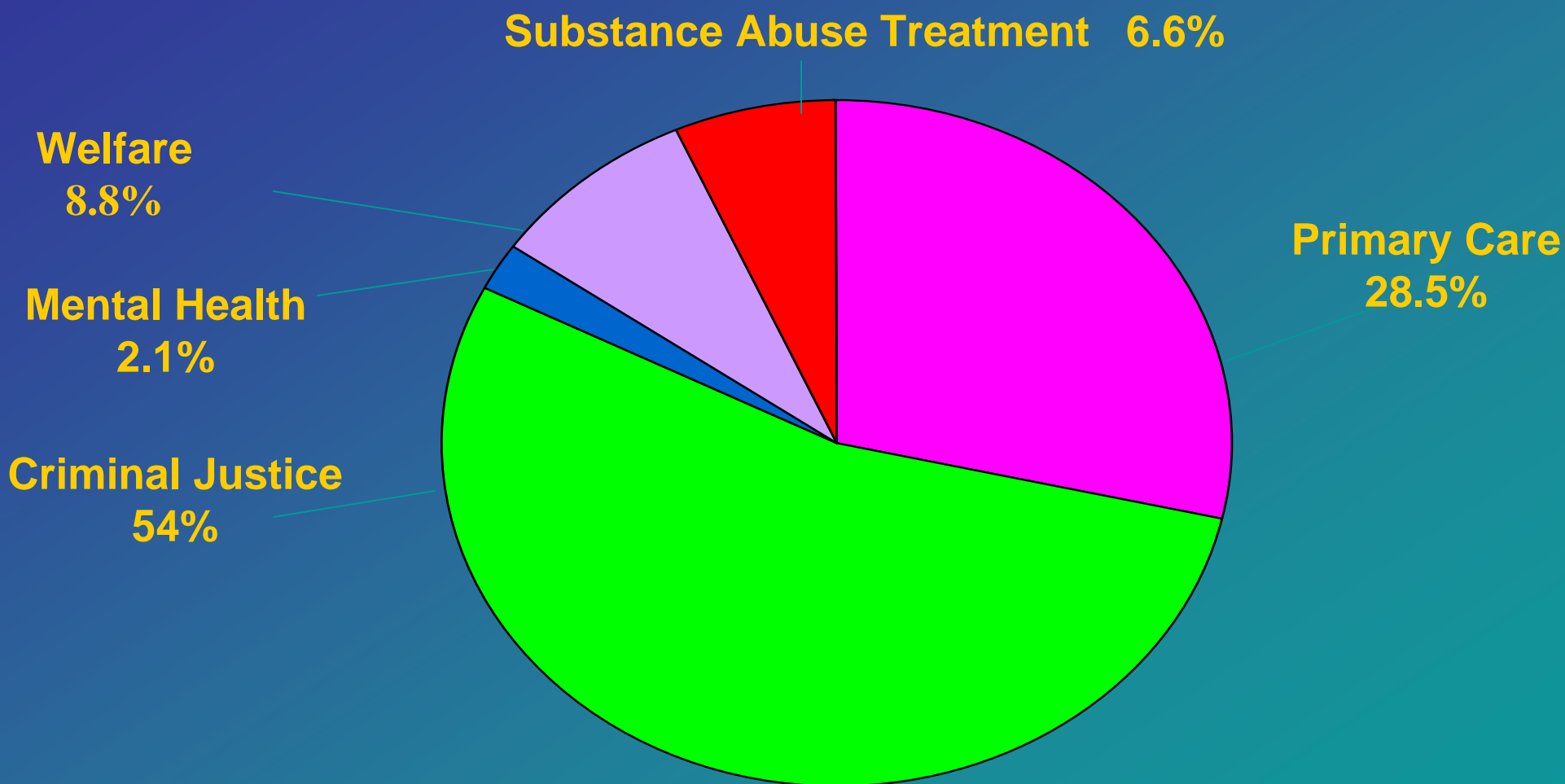
Substance Abuse Treatment 3.8%



¹ Data weighted for design effects, non-response, and to a common fieldwork duration so that each agency system sample is shown to its size.

² Weekly drug use rates over a base of women weekly drug users across all agency systems.

Distribution of New Admissions of Male Weekly Drug Users² in Community Agency Systems¹



¹ Data weighted for design effects, non-response, and to a common fieldwork duration so that each agency system sample is shown to its size.

² Weekly drug use rates over a base of men weekly drug users across all agency systems. (Weighted N=421)

Implications for Screening and Intervention

- Gender
- Age
- Other co-occurring problems

Why is Primary Care Important?

Alcohol and Drug Abuse is Related to Costly
Medical and Psychiatric Problems

Hazardous Drinkers and Drug Users in Primary Care

- Prevalence of 10% for either alcohol or drug problems
- Hazardous drinkers and drug users had higher prevalence than other primary care patients of several common medical conditions, including:
 - Injury
 - Hypertension
 - Asthma, emphysema, COPD
 - Pneumonia
 - Depression, Anxiety, and Major Psychoses
- Higher health care costs

Mertens JM, Weisner C, Ray GT, Fireman B, Walsh K. Hazardous drinkers and drug users in HMO primary care: prevalence, medical conditions, and costs. *Alcohol Clin Exp Res*. 2005;29:989-98.

Adult Chemical Dependency Patients vs. Age and Gender Matched Health Plan Members : ICD-9 Medical Conditions*

	CD Patients (N=747)	Matched Members (N=3,690)
Injury and Overdoses	26%	13%
Lower Back Pain	11%	6%
Headache	10%	4%
Hypertension	7%	3%
Asthma	7%	3%
Acid-related Disorders	4%	2%
Arthritis	4%	1%

*all $p < .001$

Mertens JR, Lu Y, Parthasarathy S, Moore C, Weisner CM. Medical and psychiatric conditions of alcohol and drug treatment patients in an HMO: comparison with matched controls. *Arch Int Med.* 2003;163:2511-7.

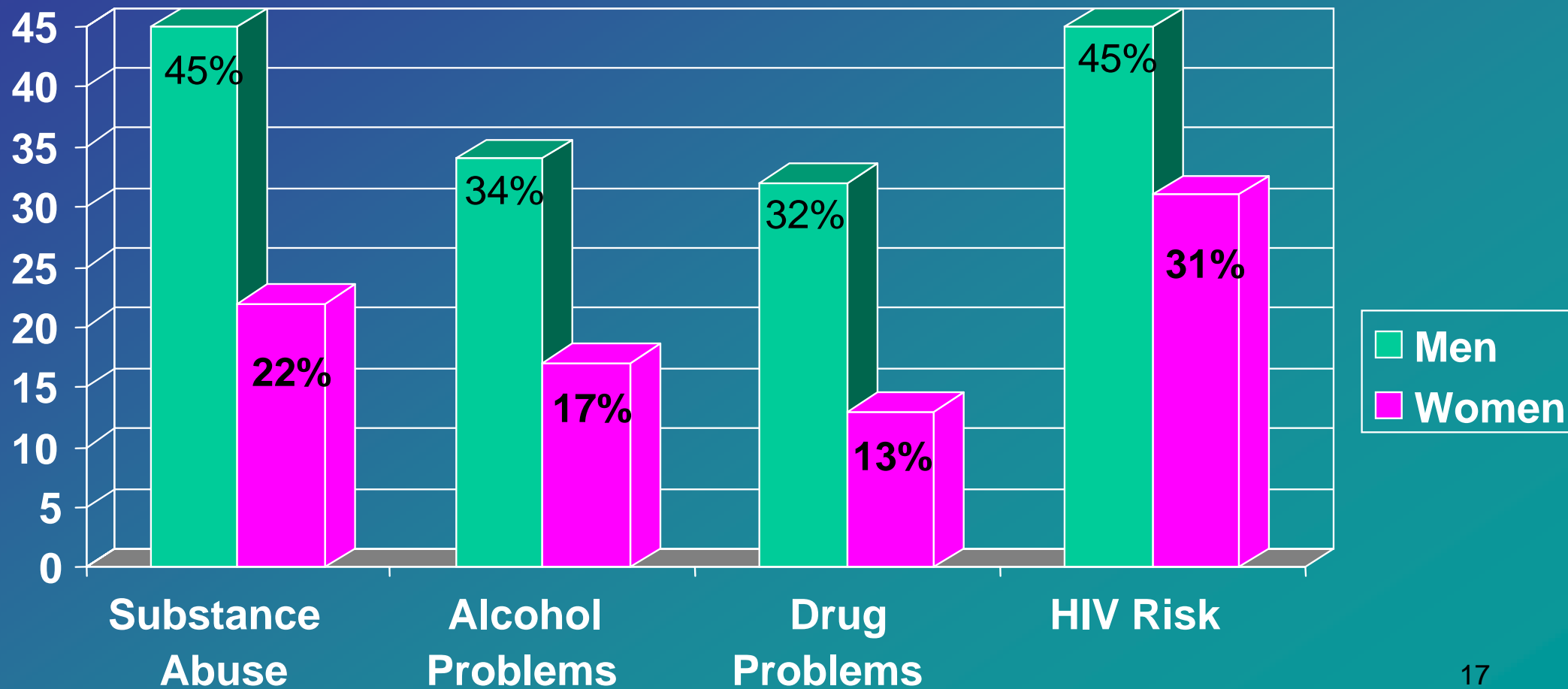
Adult Chemical Dependency Patients and Age vs. Gender Matched Health Plan Members: ICD-9 Psychiatric Conditions *

	CD Patients (N=747)	Matched Members (N=3,690)
Depressive Disorders	29%	3%
Anxiety Disorders	17%	2%
Psychoses	7%	0.4%

*all $p < .001$

Mertens JR, Lu Y, Parthasarathy S, Moore C, Weisner CM. Medical and psychiatric conditions of alcohol and drug treatment patients in an HMO: comparison with matched controls. *Arch Int Med*. 2003;163(20):2511-17.

Mobile Health Van Prevalence of Problems by Gender



Adolescent Chemical Dependency Patients (age 12-18) vs. Age and Gender Matched Health Plan Members: ICD-9 Conditions

Higher prevalence of medical conditions,* including:

- Asthma
- Injury
- Sleep disorders
- Pain conditions (abdominal pain, muscle pain, and headaches)
- STDs
- Benign conditions of the uterus
- Dermatology conditions
- Gastroenteritis

*All $p < .05$

Mertens J, Flisher A, Sterling S, Weisner C. Medical conditions in adolescent alcohol and drug treatment patients in a private health plan: comparison with matched controls. Research Society on Alcoholism, Santa Barbara, CA, 2005.

Adolescent Chemical Dependency Patients (age 12-18) vs. Matched Health Plan Members: Psychiatric Conditions*

	CD Patients	Controls
Depression	36%	4%
Anxiety Disorder	16%	2%
ADHD	17%	3%
Conduct Disorder	19%	1%
Conduct Disorder (w/ODD)	27%	2%
Any Psychiatric Diagnosis	56%	9%

* All $p < .001$

Sterling S, Weisner C. Chemical dependency and psychiatric services for adolescents in private managed care: Implications for outcomes. *Alcohol Clin Exper Res*. 2005;25(5):801-9.

Adolescent Chemical Dependency Patients: HIV Risk Behaviors

- **Rate of at least 1 reported HIV risk behavior was 47%**
 - Girls who used narcotic analgesics (painkillers) without prescription at least once during the previous 6 months were 5 times more likely to engage in multiple HIV risk behaviors.
 - Boys who drank 5 or more drinks in a day at least once during the past 6 months were 4 times more likely than other patients to engage in multiple HIV risk behaviors.

Ammon L, Sterling S, Mertens J, Weisner C. Adolescents in private chemical dependency programs: who are most at risk for HIV? *J Subst Abuse Treat.* 2005;29(1):39-45.

Summary of Prevalence and Co-occurring Problems

- Alcohol and drug problems are highly prevalent across community agencies – more people are seen there than in substance abuse programs.
- Individuals with alcohol and drug problems have high rates of medical, mental health, legal, employment and other problems.
- There are important differences in where individuals with substance use problems are found, as well as their co-occurring problems in regard to gender, age, and ethnicity.
- There are many opportunities for addressing alcohol and drug problems in community agencies.



Discussion

How are integrated care related to outcomes and cost?



Integrated Care Study

- Randomized, intent to treat, design (n=747)
- Interviewed at intake to treatment
- 3-, 6- and 12-month, 5-, 7-, 9- & 11-year interviews
- Health plan administrative data on clinical diagnosis, utilization and cost collected throughout study
- Matched sample of members from the health plan (on age, gender, catchment area, and length of enrollment in the health plan)
- Breath and urinalysis during treatment and at each follow-up)

Weisner C, Mertens J, Parthasarathy S, Moore C. Integrating primary medical care with addiction treatment: A randomized controlled trial. *JAMA* 286(14):1715-1723.

Medical Services Related to Abstinence at 6 Months

(among those with Substance Abuse-Related Medical Problems)

<u>Independent Variable</u>	<u>O.R.</u>	<u>95% C.I.</u>
Integrated Medical Care (vs. Usual Care)	1.90	(1.22, 2.96)

Controlling for baseline alcohol ASI severity and baseline drug ASI severity

Weisner C, Mertens J, Parthasarathy S, Moore C. Integrating primary medical care with addiction treatment: A randomized controlled trial. *JAMA*. 2001;286(14):1715-1723.

Psychiatric Services Predicting Abstinence at One-Year (among substance abuse patients with psychiatric diagnoses at intake)

- ❑ Completing substance abuse treatment
- ❑ Receiving at least 3 hours of hours psychiatric services
- ❑ Receiving at least 2 months concurrent substance abuse and mental health services during the year

Logistic regression controlling for: gender, age, ethnicity, baseline alcohol, drug, and psychiatric severity, # of 12 step meetings

* $p < .05$, ** $p < .01$

Chi FW, Satre DD, Weisner C. Chemical dependency patients with co-occurring psychiatric diagnoses: Service patterns and one-year outcomes. (in press) *Alcoholism: Clinical & Experimental Research*.

Psychiatric Services Predicting Abstinence at Five Years (among adults with psychiatric problems at 12 months)

- Those individuals who received two or more hours of psychiatric services each year were over two times more likely to be abstinent five years after substance abuse treatment.

Controlling for age, gender, type of dependence, abstinence goal, readmission, # of AA meetings, recovery-oriented social support, treatment intensity

Ray GT, Mertens JR, Weisner CM. Relationship between use of psychiatric services and five-year alcohol and drug treatment outcomes. *Psychiatric Services*. Feb 2005;56(2):164-171.

Five Year Outcomes of Health & Social Service Interventions: Insured & Non-insured Problem Drinkers

- Drinking addressed in medical & mental health settings predicted lower alcohol consumption over 5 years
- Recovery-oriented social networks predicted lower consumption over 5 years

Treatment is episodic – ongoing contact with healthcare and change in social networks is important

Weisner C, Matzger H, Delucchi K. The role of community services and informal support on five-year drinking trajectories of alcohol dependent and problem drinkers. *J Stud Alcohol*. 2003;64:862-73.

Aftercare

- “...the duration of care is more important than the amount of care.”
- “Recovery sustained after treatment is not due simply to treatment; it is nurtured by the same sets of factors that maintain the resolution of problems without treatment.”
 - On-going social resources
 - Recovery-focused self-help groups
 - Quality of interpersonal relationships
 - Personal growth

Predicting Abstinence at Six Months: Dual Treatment for Adolescents in CD Treatment

Adolescents treated in facilities with **co-located services** had greater odds of being abstinent at 6 months compared to those treated in facilities with separated services (OR: 1.61, p.03).

Controlling for gender, age, ethnicity, YSR internalizing & externalizing scores, and severity of substance problems

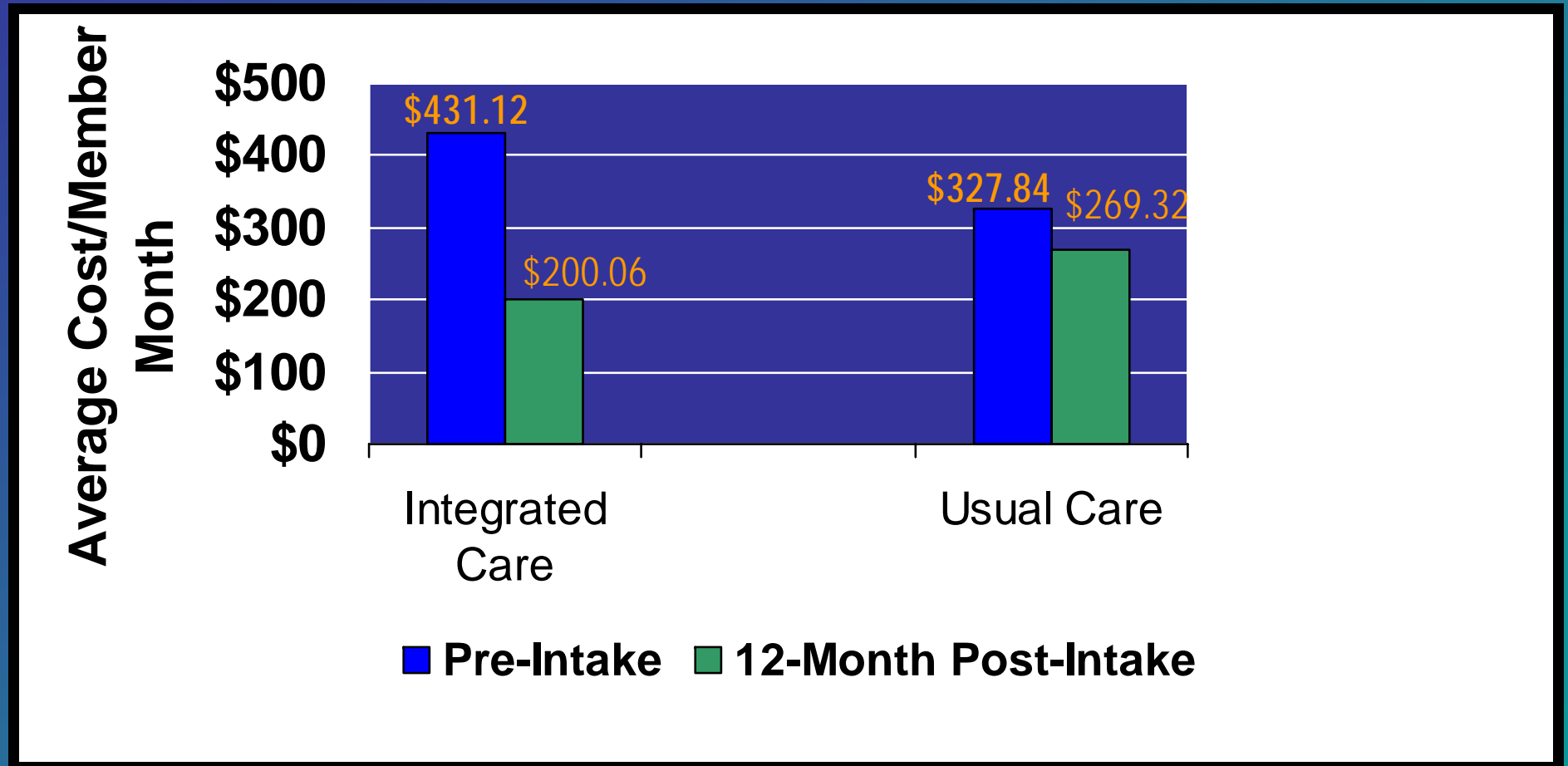
Sterling S, Weisner C. Chemical dependency and psychiatric services for adolescents in private managed care: Implications for outcomes. *Alcoholism: Clinical & Experimental Research*. May 2005;25(5):801-809.

Cost Impact

What do we know about cost?

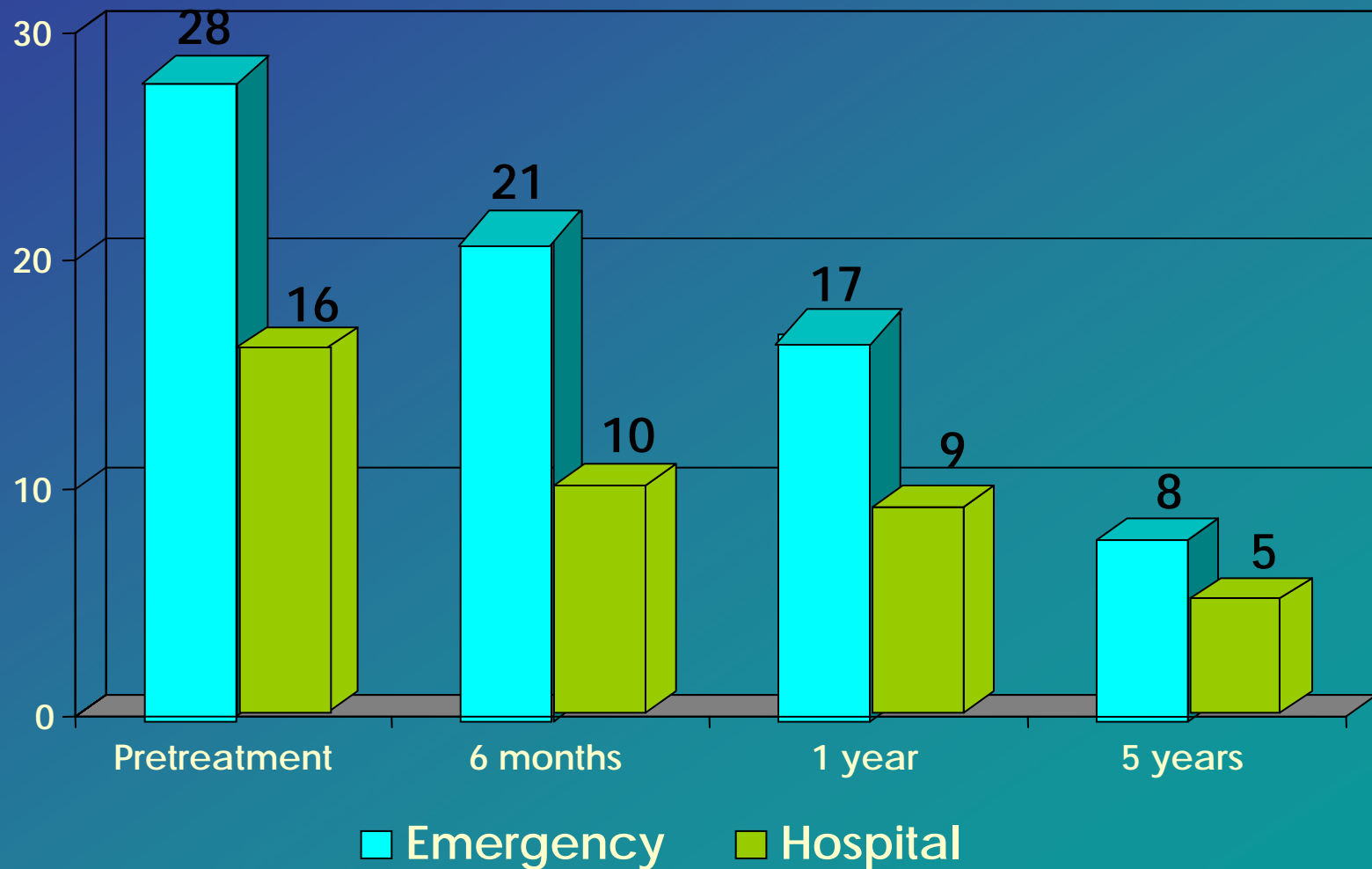
- **High rates of medical utilization prior to treatment** (Holder and Blose, 1986; Goodman et al., 1992; Stein et al., 1993; French et al., 1996)
- **CD treatment can offset some costs. (Estimates range from 26 - 69%)** (Holder and Blose, 1992; French and Zarkin, 1993; Harwood et al., 1988)
- **Most excess utilization is from emergency room and inpatient care rather than primary care** (Parthasarathy et al., 1999; Stein et al., 1993)
- **Cost offset differs by patient characteristics, including co-morbidity** (Parthasarathy et al., in press)

Medical Costs after Treatment for Integrated Medical Care for Those with Substance Abuse-Related Medical Conditions



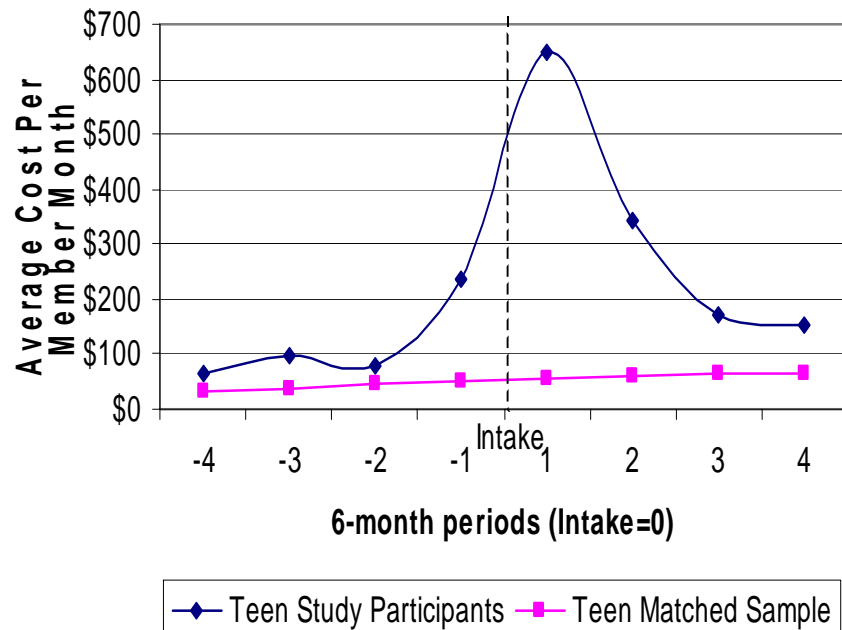
Parthasarathy S, Mertens J, Moore C, Weisner C. Utilization and cost impact of integrating substance abuse treatment and primary care. *Med Care*. Mar 2003;41(3):357-367.

Emergency Room and Hospital Episodes: Pre-treatment to 5 years Post-treatment

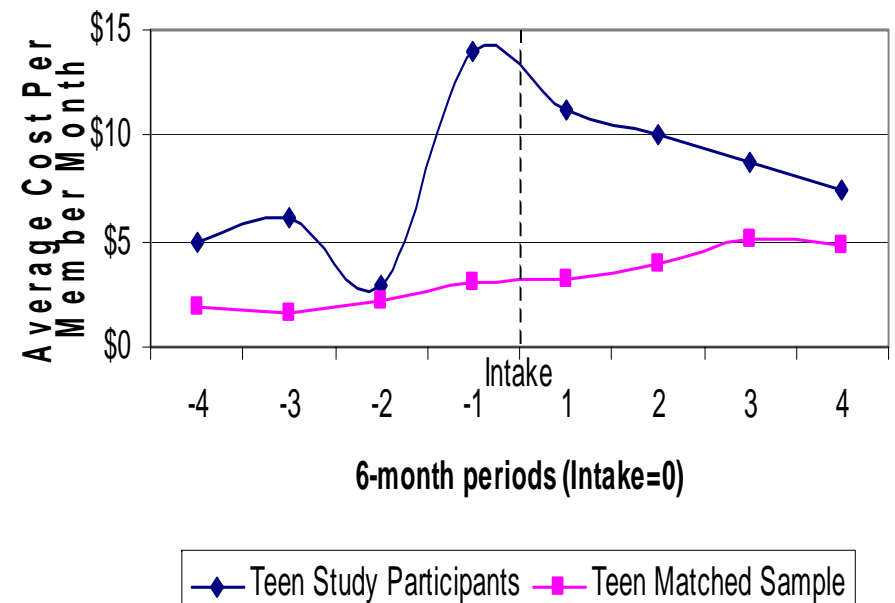


Adolescent Cases versus Controls: Distribution of Costs

Distribution of Overall Costs by 6-month Window

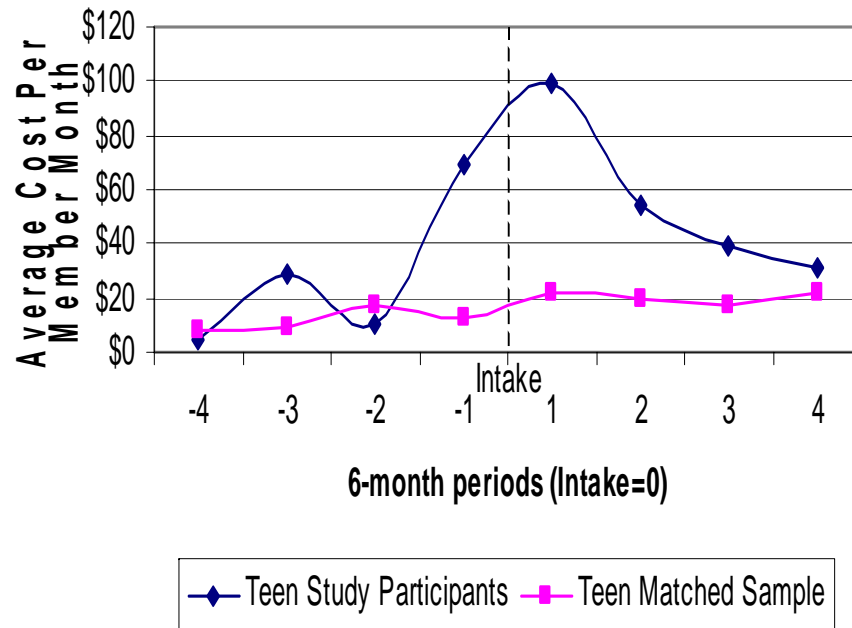


Distribution of ER Costs by 6-month Window

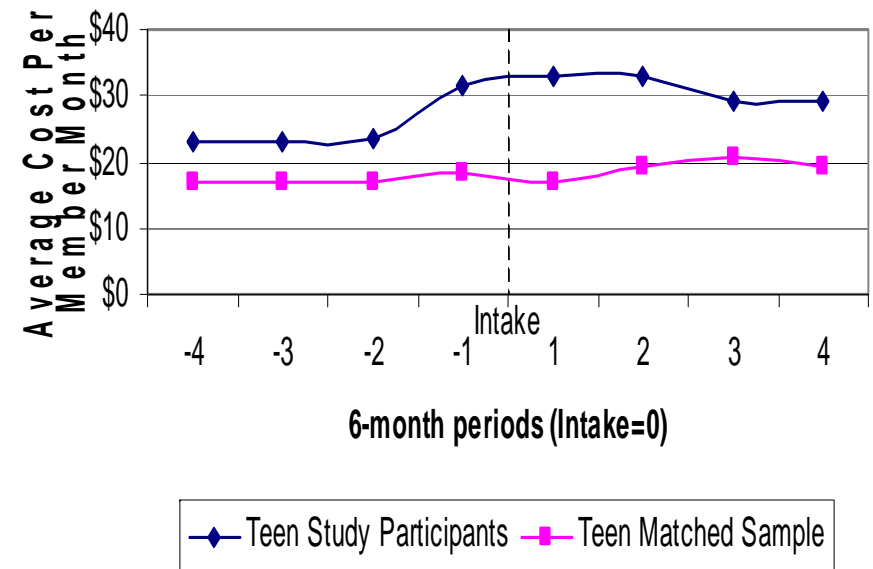


Adolescent Cases versus Controls: Distribution of Costs

Distribution of Hospital Costs by 6-month Window

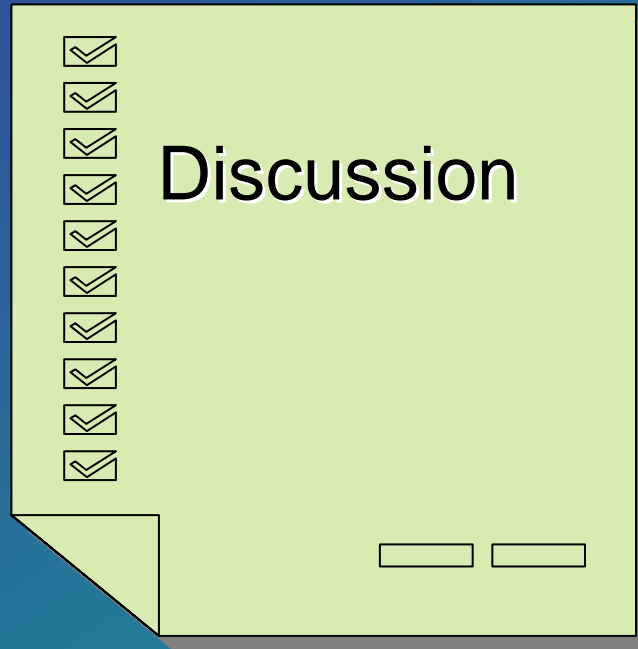


Distribution of Primary Care Costs by 6-month Window



Summary and Implications of Treatment Related to Costs

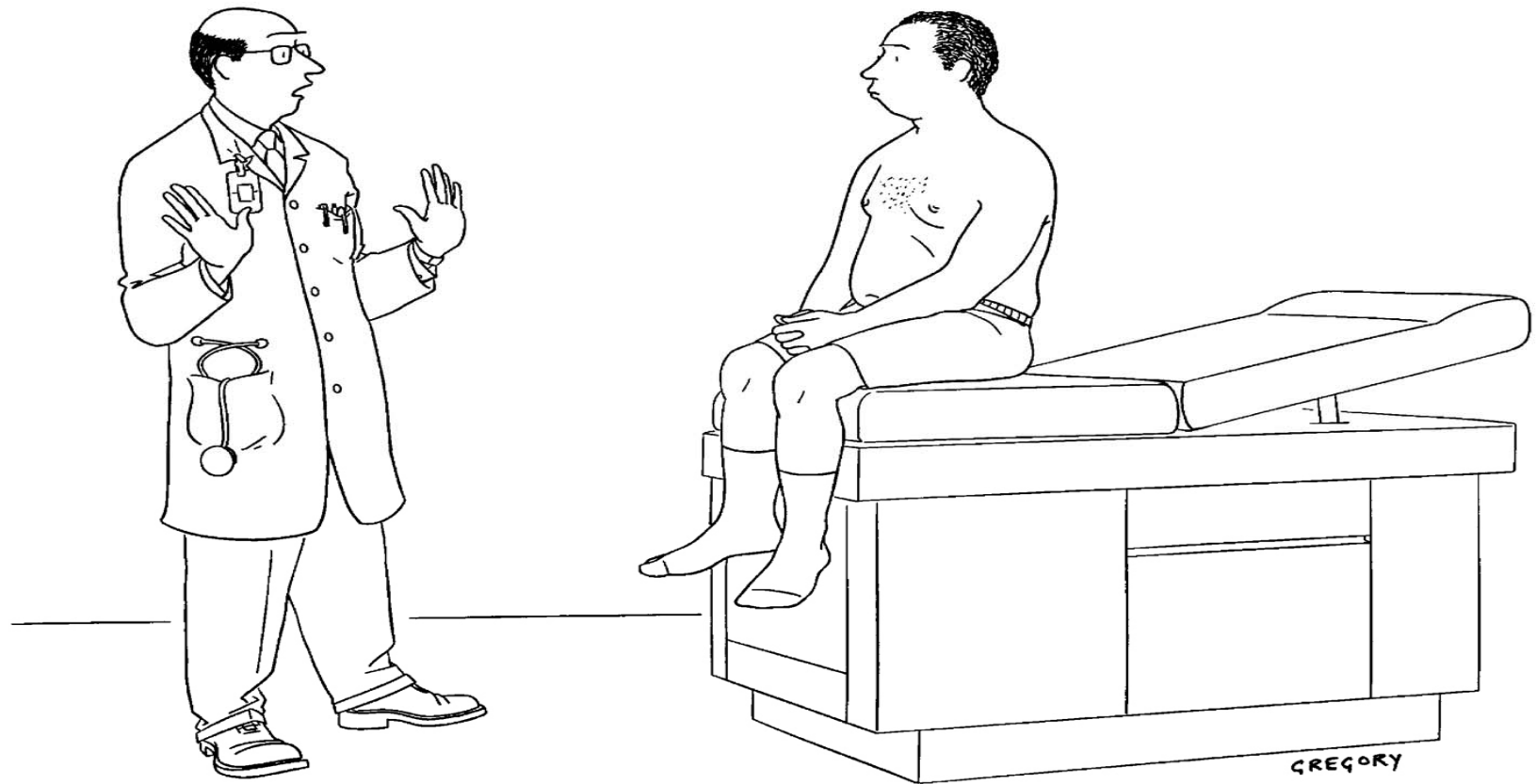
- More medical problems for individuals with alcohol and drug problems than for others
- Higher medical utilization and cost prior to treatment
- Costs reduced after treatment
- We haven't done as much as we should in using cost findings to impact health and social policy.
- Important to look at entire cost picture – “across” systems



Missed Opportunities

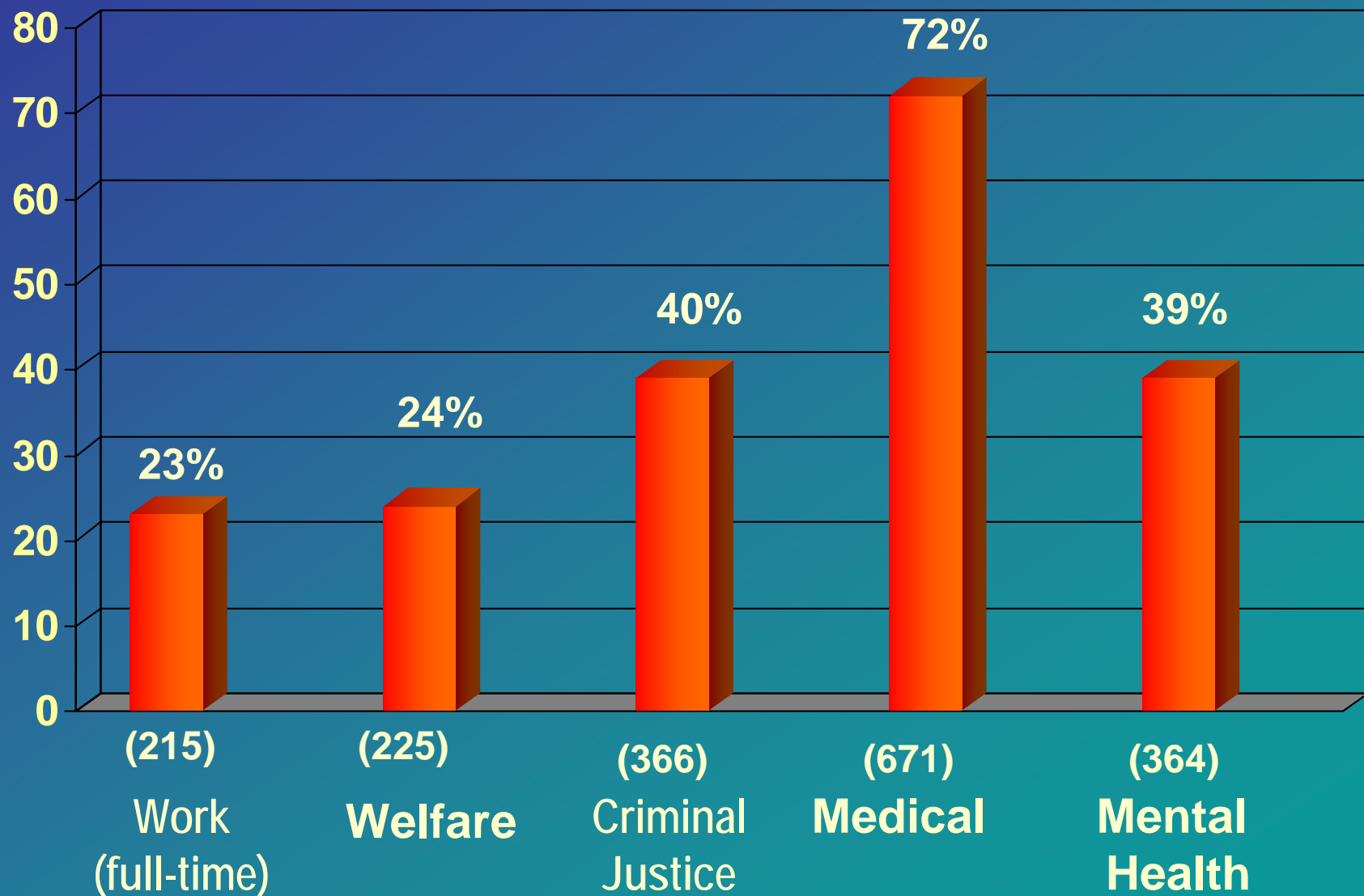
Do medical and social service providers
miss opportunities to address
alcohol and drug problems?

Weisner C, Matzger H. Missed opportunities in addressing drinking behavior in medical and mental health services. *Alcohol Clin Exper Res*. 2003;27:1132-41.

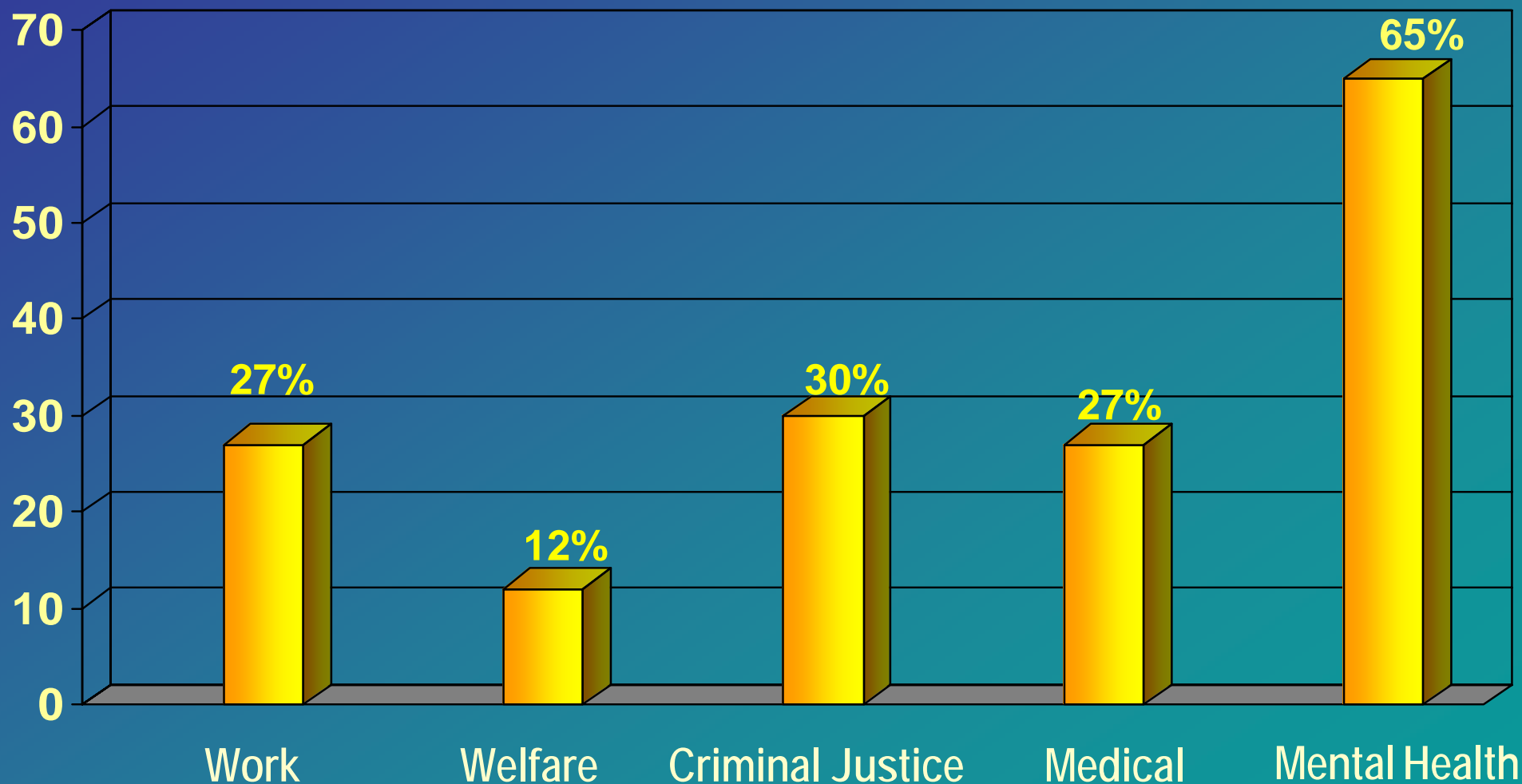


“Whoa—way too much information.”

Contact with Health & Social Service Systems: Insured & Non-insured Problem Drinkers



Of Those Who Had a Contact: Who Had their Drinking Addressed?



Who has Drinking Addressed in Medical and Mental Health Visits?

- **Medical:** Although women problem drinkers were more likely than men to have a visit and more than one visit, they were **not more likely** to have their drinking addressed.
- **Mental Health:** Although women problem drinkers were more likely than men to have a visit, they were **less likely** to have their drinking addressed.

Weisner C, Matzger H. Missed opportunities in addressing drinking behavior in medical and mental health services. *Alcohol Clin Exper Res*. 2003;27:1132-41.

What to do: Screening

New Physician's Handbook:








- How many times in the past year have you had
 - 5 or more drinks in a day (14/week)? (for men)
 - 4 or more drinks in a day (7/week)? (for women)
- On average, how many days a week do you have an alcoholic drink?
- On a typical drinking day, how many drinks do you have?

My Doctor said "Only 1 glass of alcohol a day". I can live with that.



What Is a Standard Drink?

A standard drink is any drink that contains about 14 grams of pure alcohol (about 0.6 fluid ounces or 1.2 tablespoons). Below are standard drink equivalents. These are approximate, as different brands and types of beverages vary in their actual alcohol content.

12 oz. of beer or cooler	8–9 oz. of malt liquor 8.5 oz. shown in a 12-oz. glass that, if full, would hold about 1.5 standard drinks of malt liquor	5 oz. of table wine	3–4 oz. of fortified wine (such as sherry or port) 3.5 oz. shown	2–3 oz. of cordial, liqueur, or aperitif 2.5 oz. shown	1.5 oz. of brandy (a single jigger)	1.5 oz. of spirits (a single jigger of 80-proof gin, vodka, whiskey, etc.) Shown straight and in a highball glass with ice to show level before adding mixer*
						
12 oz.	8.5 oz.	5 oz.	3.5 oz.	2.5 oz.	1.5 oz.	1.5 oz.

Drug Screening Tests: Adults

- **Drug Abuse Screening Test (DAST) – 10 questions about substance use and related problems**
- **CAGE-AID – CAGE screening to include drugs**
- **SASI – The Substance Abuse Screening Instrument - 15 item test designed to identify persons in the CJ system who may need further assessment**
- **WHO ASSIST – Alcohol, Smoking and Substance Involvement Screening Test - 8 items**
 - ❑ **Health risks & problems associated with any substance use**
 - ❑ **Designed to provide lifetime and current (past 3 months) estimates of substance use related risk**
 - ❑ **Screens for caseness and risky use**

Screening for Drug Use

- During the past three months, how often did you take any prescribed medications for pain, anxiety, or sleep problems, such as painkillers, tranquilizers, or sleeping pills *in a way other than as prescribed?*
(5 or more times)
- During the past three months, how many times did you use drugs other than those required for medical reasons?
(5 or more times)

Mertens JM, Weisner C, Ray GT, Fireman B, Walsh K. Hazardous drinkers and drug users in HMO primary care: prevalence, medical conditions, and costs. *Alcohol Clin Exp Res*. Jun 2005;29(6):989-998.

CRAFFT: A Brief Screening Test for Adolescent Substance Abuse

- C** - Have you ever ridden in a **CAR** driven by someone (including yourself) who was “high” or had been using alcohol or drugs?
- R** - Do you ever use alcohol or drugs to **RELAX** feel better about yourself, or fit in?
- A** - Do you ever use alcohol or drugs while you are by yourself, **ALONE**?
- F** - Do your family or **FRIENDS** ever tell you that you should cut down on your drinking or drug use?
- F** - Do you ever **FORGET** things you did while using alcohol or drugs?
- T** - Have you gotten into **TROUBLE** while you were using alcohol or drugs?

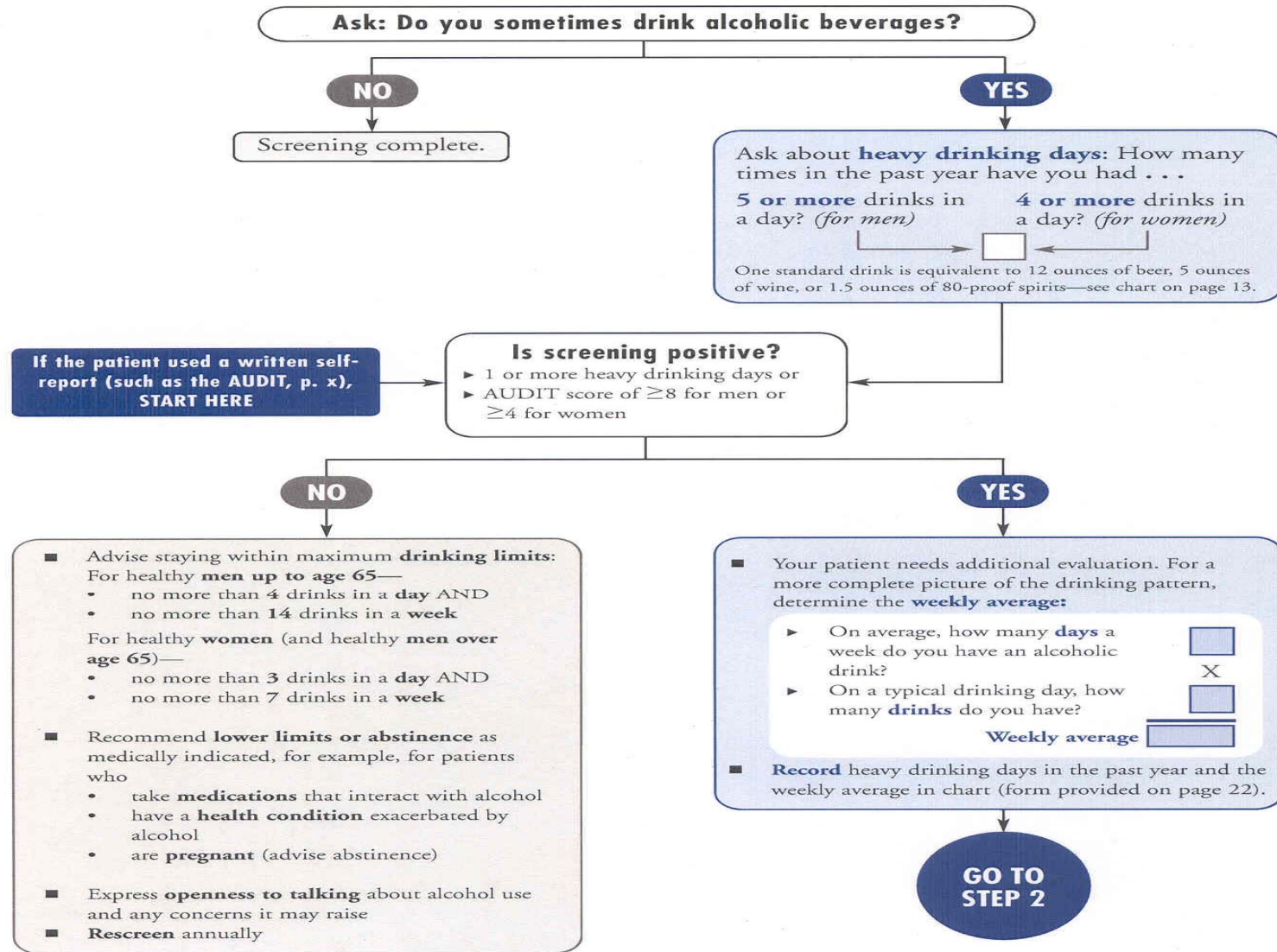
Knight JR, Sherritt L, Shrier LA, Harris SK, Chang G. Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Arch Pediatr Adolesc Med* 2002. 2002;156:607-614.

An individual has screened positive
for alcohol or drug use.
What next?

Brief intervention, referral, develop linkages

HOW TO SCREEN FOR HEAVY DRINKING

STEP 1 Ask About Alcohol Use



Randomized Trial in Primary Care: Four-Session Intervention:

(2 physician & 2 nurse brief visits)

- Intervention group had fewer drinking days, fewer binge drinking episodes ($p < .001$ for both)
- Intervention group had fewer days of hospitalization ($p = .05$) and ER visits ($p = .08$)

Effect was maintained over 2 years (although was lessened over time)

- Benefit cost analysis: \$43,000 reduction in future medical costs for every \$10,000 invested (larger if include societal benefits)

Fleming MF, Mundt MP, French MT, Manwell LB, Stauffacher EA, Barry KL. Brief physician advice for problem drinkers: long-term efficacy and benefit-cost analysis. *Alcohol Clin Exp Res*. 2002;26(1):36-43.

Brief Motivational Randomized Study of Intervention for Drug Use in Outpatient Clinics: 1 session & telephone booster

Intervention group more likely to be abstinent (at 6 months) for:

- Cocaine alone (OR = 1.51, $p=.05$)
- Heroin alone (OR = 1.51, $p=.045$)
- Both drugs (OR = 1.57, $p=.05$)

Bernstein J, Bernstein E, Tassiopoulos K, Heeren T, Levenson S, Hingson R. Brief motivational intervention at a clinic visit reduces cocaine and heroin use. *Drug Alcohol Depend.* Jan 7 2005;77(1):49-59.

Potential Interventions

- ❑ Motivational interviewing
- ❑ Twelve-step facilitation
- ❑ Cognitive behavioral

National Registry of Evidence-based Programs and Practices (NREPP)

created by the

Substance Abuse and Mental Health Services Administration Model Programs

Complete list

http://modelprograms.samhsa.gov/textonly_cf.cfm?page=model_list

Coordination and Linkages: A Continuum

- Ad hoc arrangements between individual providers in different systems
- Referral agreement
- Contractual arrangement
- Joint program
- Case management/transportation
- On-site program/out-stationing across agencies

Friedmann PD, D'Aunno TA, Jin L, Alexander JA. Medical and psychosocial services in drug abuse treatment: do stronger linkages promote client utilization? *Health Serv Res.* 2000;335(2):443-65.

Continuum of Care

- Screening in primary care
 - Interventions in primary care and follow-up
 - Referral to substance abuse treatment
- Substance abuse treatment
 - Linkages with primary care
 - Development of recovery-oriented social networks
- Aftercare
 - On-going contact with substance abuse treatment
 - On-going relationships with primary care
 - Engagement with recovery-oriented social networks

An Additional Reason to Intervene in Primary Care

Family Members of Individuals with Alcohol and Drug Problems also have Problems

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**Treatment providers and patients of
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programs**



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National Institute on Alcohol Abuse and Alcoholism
National Institute on Drug Abuse
Robert Wood Johnson Foundation
Substance Abuse and Mental Health Services Administration

